



PATENT  
Attorney Docket No.: A-68718-2/RFT/RMS/RMK  
Attorney File No.: 463037-217

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

DUONG

Serial No. 09/760,384

Filed: January 11, 2001

For: *Devices and Methods for Biochip  
Multiplexing*

Examiner: Not Yet Assigned

Group Art Unit: 1645

CERTIFICATE OF MAILING

I hereby certify that this correspondence, including filed  
enclosures, is being deposited with the United States Postal  
Service as First Class Mail in an envelope addressed to  
Assistant Commissioner for Patents, P.O. Box 1450,  
Washington, D.C. 22313-1450.

Dated: December 8, 2003

Signed: *Maria Eganovich*  
Maria Eganovich

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT  
AND  
STATEMENT OF RELATEDNESS

Assistant Commissioner for Patents  
P.O. Box 1450  
Washington, D.C. 20313-1450

Sir:

In satisfaction of the duty of disclosure under 37 C.F.R. § 1.56, and in accordance with  
the provisions of 37 C.F.R. §§ 1.97 and 1.98, Applicant wishes to draw the attention of the U.S.  
Patent and Trademark Office to the references cited on the accompanying form PTO-1449.  
Copies of the documents are enclosed.

Further, in accordance with the provisions of 37 C.F.R. § 1.98(a)(3) and MPEP  
§609(III)(A)(3), Applicant submits that reference no. B1 is not in the English language and  
directs the Examiner's attention to the English language abstract of same for a concise statement  
as to its relevance.

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Further, with respect to patent applications, the applicants point out their duty under M.P.E.P. §2001.06(b) to disclose relevant patent applications of which they are aware. To this end, the applicants draw the Examiner's attention to the following patent application:

1. U.S.S.N. 09/904,175, filed July 11, 2001.

None of the foregoing references are believed to disclose the invention as claimed. Nothing herein shall constitute an admission concerning the contents of any of the cited references, nor shall the inclusion of a reference herein be considered an admission that the reference constitutes prior art against the invention claimed in the above-identified application. Submission of the present document shall not be construed as an admission that a search has been made or that better art does not exist.

Pursuant to 37 C.F.R. §1.97(c), enclosed is a check in the amount of \$180.00 as set forth in 37 C.F.R. §1.17(p). While no further fee is believed to be due, if this belief is in error, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-2319 (Our Order No. 463037-217 (A-68718-2/RMS/RMK/JML)).

Please direct any calls in connection with this application to the undersigned at (415) 781-1989.

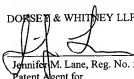
Respectfully submitted,

DORSEY & WHITNEY LLP

Date:

8 Dec. 2003

Customer Number: 32940  
Four Embarcadero Center, Suite 3400  
San Francisco, CA 94111-4187  
Telephone: (415) 781-1989  
Facsimile: (415) 398-3249

  
Jennifer M. Lane, Reg. No. 51,916  
Patent Agent for  
Robin M. Silva, Reg. No. 38, 304

Filed under 37 C.F.R. § 1.34(a)

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet **1** of **4**

## Complete if Known

Application Number **09/760,384**  
 Filing Date **January 11, 2001**  
 First Named Inventor **DUONG, Hau H.**  
 Group Art Unit **1743**  
 Examiner Name **Sines, Brian J.**  
 Attorney Docket Number **A-68718-2/RFT/RMS/RMK (463037-217)**

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## U.S. PATENT DOCUMENTS

Examiner Initials*	City No.	U.S. Patent Document Number-Kind Code* (if known)	Publication Date MM-DD-YYYY	Name of Petitioner or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A0	4,713,347	12-15-1987	Mitchell et al.	
	A1	4,735,907	04-05-1988	Schaeffer et al.	
	A2	4,877,830	10-31-1989	Dobeli et al.	
	A3	4,920,047	04-24-1990	Glaeser et al.	
	A4	5,156,810	10-20-1992	Ribi	
	A5	5,192,507	03-09-1993	Taylor et al.	
	A6	5,296,375	03-22-1994	Kricka et al.	
	A7	5,304,487	04-19-1994	Wilding et al.	
	A8	5,308,754	05-03-1994	Kankare et al.	
	A9	5,466,335	01-23-1996	Wilding et al.	
	A10	5,491,097	02-13-1996	Ribi et al.	
	A11	5,498,392	03-12-1996	Wilding et al.	
	A12	5,552,270	09-03-1996	Khrapko et al.	
	A13	5,565,552	10-15-1996	Magda et al.	
	A14	5,586,069	12-17-1996	Zanzucchi et al.	
	A15	5,587,128	12-24-1996	Wilding et al.	
	A16	5,593,838	01-14-1997	Zanzucchi et al.	
	A17	5,603,351	02-18-1997	Cherukun et al.	
	A18	5,632,876	05-27-1997	Zanzucchi et al.	
	A19	5,632,957	05-27-1997	Heller et al.	
	A20	5,635,356	06-03-1997	Wilding et al.	
	A21	5,637,469	06-10-1997	Wilding et al.	
	A22	5,643,738	07-01-1997	Zanzucchi et al.	
	A23	5,681,484	10-28-1997	Zanzucchi et al.	
	A24	5,700,667	12-23-1997	Marble et al.	
	A25	5,705,348	01-05-1998	Okamoto et al.	
	A26	5,726,026	03-10-1998	Wilding et al.	
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	A29	5,770,029	06-23-1998	Nelson et al.	
	A30	6,013,170	01-11-2000	Meade	
	A31	6,013,459	01-11-2000	Meade	
	A32	6,090,545	07-18-2000	Wohlschlaedler et al.	
	A33	6,100,045	08-08-2000	Van Es	
	A34	6,100,059	08-08-2000	Gordon et al.	

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 † Unique citation designation number. ‡ See attached Kinds of U.S. Patent Documents at www.uspto.gov or MPEP 801.04. § Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ¶ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. \*\* Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. †† Applicant is to place a check mark here if English Language Translation is attached.  
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# **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

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## **Complete if Known**

Substitute for form 1448A/PTO		Application Number	09/760,384
		Filing Date	January 11, 2001
		First Named Inventor	DUONG, Hau H.
		Group Art Unit	1743
		Examiner Name	Sines, Brian J.
		Attorney Docket Number	A-68718-2/RFT/RMS/RMK (463037-217)
Sheet	2 of 4		

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Examiner Initials*	Cite No.	U.S. Patent Document Number/Kind Code* (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A35	6,211,356 B1	04-03-2001	Wessler et al.	
	A36	6,258,593 B1	07-10-2001	Schermbri et al.	
	A37	6,326,211 B1	12-04-2001	Anderson et al.	

## **FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No.	Foreign Patent Document Country Code* Number* Kind Code* (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	1*
	B1	EP 0 439 036	07-31-1991	Hoffman-La Roche AG	Abstract	
	B2	EP 0 478 319 A1	04-01-1992	Tokyo Shibaura Elect. Co.		
	B3	EP 0 637 996 B1	02-15-1995	Trustees of Univ. of Pennsylvania		
	B4	EP 0 637 998 B1	02-15-1995	Trustees of Univ. of Pennsylvania		
	B5	WO 93/23425 A1	11-25-1993	The Ontario Cancer Inst.		
	B6	WO 94/22889 A1	10-13-1994	Cis Bio International		
	B7	WO 95/35102 A1	12-28-1995	NexStar Pharmaceuticals, Inc.		
	B8	WO 96/15450 A1	05-23-1996	David Saroff Research Center		
	B9	WO 96/15576 A1	05-23-1996	David Saroff Research Center		
	B10	WO 96/39252 A1	12-12-1996	David Saroff Research Center		
	B11	WO 96/39260 A1	12-12-1996	David Saroff Research Center		
	B12	WO 97/16561 A1	05-08-1997	David Saroff Research Center		
	B13	WO 97/27324 A1	07-31-1997	David Saroff Research Center		
	B14	WO 97/37755 A1	10-15-1997	Saroff Corporation		
	B15	WO 97/43629 A1	11-20-1997	Saroff Corporation		
	B16	WO 97/46568 A1	12-11-1997	Calif. Inst. of Technology		
	B17	WO 98/13683 A1	04-02-1998	Saroff Corporation		
	B18	WO 98/31839 A2	07-23-1998	Harvard College		
	B19	WO 99/33559 A1	07-08-1999	Cepheid		

## **OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	1*
	C1	ALEXANDER, V., "Design and Synthesis of Macrocyclic Ligands and their Complexes of Lanthanides and Actinides," Chem. Rev. 95(2):273-342 (Mar. - Apr. 1995).	

Examiner Signature	Cite Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 608. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

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Application Number 09/760,384  
Filing Date January 11, 2001  
First Named Inventor DUONG, Hau H.  
Group Art Unit 1743  
Examiner Name Sines, Brian J.  
Attorney Docket Number A-68718-2/RFT/RMS/RMK (463037-217)

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## OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Index	Citg No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	1*
	C2	ANNE, A., et al., "Synthesis of first ferrocene labeled didoxynucleotide and its use for 3' end-labeling of 5' modified single stranded oligonucleotides," <i>Bioconjug. Chem.</i> 12(3):395-405 (May - Jun. 2001).	
	C3	CDINGTON, J.F., et al., "Nucleosides. XIII. Synthesis of 3'-Amino-3'-deoxy-arabinosyl-uracil via 2', 3'-Epoxy-lyxosyl Nucleoside," <i>J. Org. Chem.</i> 27(1):163-167 (Jan. 1962).	
	C4	CONWAY, N.E., et al., "Site-specific attachment of labels to the DNA backbone," in <i>Oligonucleotides and Analogues: A Practical Approach</i> , 211-235, Eckstein, F. (ed.), IRL Press: Oxford, GB (1991).	
	C5	DWYER, T., et al., "Structural Analysis of Covalent Peptide Dimers, Biotryptidine-2-carboxamidonetropin (CH2) 3-6, in Complex with 5'-TGACT-3' Sites by Two Dimensional NMR," <i>J. Am. Chem. Soc.</i> 115(22):9900-9906 (1993).	
	C6	GATT, M.J., "Oligonucleotide Synthesis," in <i>Oligonucleotides and Analogues: A Practical Approach</i> , 25-48, Eckstein, F. (ed.), IRL Press: Oxford, GB (1991).	
	C7	GILLES, P.N., et al., "Single nucleotide polymorphic discrimination by an electronic dot blot assay on semiconductor microchips," <i>Nat. Biotechnol.</i> 17(4):355-370 (Apr. 1999).	
	C8	GLDVER, D., et al., "Alternating current Polarography in the Harmonic Multiplex Mode," <i>Anal. Chem.</i> 45(11):1859-1877 (Sep. 1973).	
	C9	KIRSCHENHEUTER, G., et al., "An Improved Synthesis of 2'-Azido-2'-Deoxyuridine," <i>Tet. Lett.</i> 35(46):8517-8520 (1994).	
	C10	KRIDER, E.S., et al., "Electron transfer in DNA: covalent attachment of spectroscopically unique donor and acceptor complexes," <i>J. Biol. Chem.</i> 273:222-225 (1998).	
	C11	KRIDER, E.S., et al., "Automated Synthesis of 3' Metalated Digenonucleotides," <i>Inorg. Chem.</i> 40(16):4002-4009 (Jul. 2001).	
	C12	KUMAR, A., et al., "A Simple Method for Introducing -SH/CDDH Group at 5'-CH end of Digenonucleotide," <i>Nucleosides Nucleotides</i> 11(5):999-1002 (1992).	
	C13	LIU, R., et al., "Passive mixing in a three-dimensional serpentine microchannel," <i>J. Microelectromechanical Systems</i> 9(2):190-196 (Jun. 2000).	
	C14	MENGES, R., et al., "A Simple Synthesis of 2'-Deoxy-2'-fluorocytidine by Nucleophilic Substitution of 2,2'-Anhydrocytidine with Potassium Fluoride/Crown Ether," <i>Angew. Chem. Int. Ed. Engl.</i> 17(7):525 (1978).	
	C15	MILLAN, K.M., et al., "Sequence-Selective Biosensor for DNA Based on Electroactive Hybridization Indicators," <i>Anal. Chem.</i> 65(17):2317-2323 (Sep. 1993).	
	C16	MILLER, N., et al., "Nucleosides. XXI. Synthesis of Some 3'-Substituted 2', 3'-Dideoxyribonucleosides of Thymine and 5-Methylcytosine," <i>J. Org. Chem.</i> 29:1772-1776 (Jul. 1964).	
	C17	MITSUI, T., et al., "Coumarin-fluorescein pair as a new donor-acceptor set for fluorescence energy transfer study of DNA," <i>Tet. Lett.</i> 41(15):2505-2508 (2000).	
	C18	NAPIER, M., et al., "Probing biomolecule recognition with electron transfer: electrochemical sensors for DNA hybridization," <i>Bioconjug. Chem.</i> 8(6):906-913 (Nov. - Dec. 1997).	
	C19	O'DONNELL-MALONEY, M., et al., "The development of microfabricated arrays for DNA sequencing and analysis," <i>Trends Biotechnol.</i> 14(10):401-407 (Oct. 1996).	
	C20	PIEKEN, W.A., et al., "Kinetic Characterization of Ribonuclease-Resistant 2'-Modified Hammerhead Ribozymes," <i>Science</i> 253(5017):314-317 (Jul. 1991).	
	C21	SEBESTA, D., et al., "2'-Deoxy-2'-alkoxyaminocuridines: Novel 2'-Substituted Uracines prepared by Intramolecular Nucleophilic Ring Opening of 2',2'-D-Amydrouridines," <i>Tetrahedron</i> 52(46):14385-14402 (Nov. 1996).	
	C22	SINHA, N.D., et al., "Oligonucleotides with reporter groups attached to the 5'-Terminus," in <i>Oligonucleotides and Analogues: A Practical Approach</i> , 185-210, Eckstein, F. (ed.), IRL Press: Oxford, GB (1991).	

Examiner Signature	Date Considered
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Sheet 4 of 4

## OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	1*
	C23	SPROAT, B.S., et al., "2'-O-Methyloligonucleotides: synthesis and applications," in <i>Oligonucleotides and Analogues: A Practical Approach</i> , 211-239, Eckstein, F. (ed.), IRL Press: Oxford, GB (1991).	
	C24	UTO, Y., et al., "Electrochemical analysis of DNA amplified by the polymerase chain reaction with a ferrocenylated oligonucleotide," <i>Anal. Biochem.</i> 250:122-124 (1997).	
	C25	VERHEYDEN, J.P.H., et al., "Synthesis of some pyrimidine 2'-amino-2'-deoxynucleosides," <i>J. Org. Chem.</i> 36(2):250-254 (1971).	
	C26	XI, Z., et al., "New Stereoccontrolled Synthesis of Isomeric C-Branched $\beta$ -D-Nucleosides by Intramolecular Free-Radical Cyclization-Opening Reactions Based on Temporary Silicon Connection," <i>Tetrahedron</i> 48(2):349-370 (1992).	
	C27	YU, C., et al., "2' ribose ferrocene oligonucleotides for electronic detection of nucleic acids," <i>J. Org. Chem.</i> 66(9):2937-2942 (May 2001).	
	C28	ZIMMERMAN, R., et al., "DNA stretching on functionalized gold surfaces," <i>Nucleic Acids Res.</i> 22(3):482-497 (Feb. 1994).	

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